

Application No. 09/841,255

REMARKS

Claims 1-4, 6-10, 12-15 and 23-25 are pending. By this Amendment, the reference to related applications has been updated. No new matter is introduced.

All of the pending claims stand rejected. Applicants respectfully request reconsideration of the rejections based on the following comments.

Double Patenting Over 09/136,483

The Examiner provisionally rejected claims 15, 23 and 25 for obviousness-type double patenting over claims 9 and 13 of copending application 09/136,483. Applicants assert that this obviousness-type double patenting rejection is improper since the present earlier filed application cannot be an attempt to extend the patent term of the later filed patent application. Under the revised statute 35 U.S.C. §154, patent term is based on the filing date. Thus, the effective patent term of a later filed application cannot be unjustly extended by an earlier filed application. Thus, the earlier application should not be subject to an obviousness-type double patenting rejection over a later filed application. See MPEP 804. Applicants respectfully request withdrawal of the rejection of claims 15, 23 and 25 for obviousness-type double patenting over claims 9 and 13 of copending application 09/136,483.

Double Patenting Over 09/433,202

The Examiner provisionally rejected claims 1-4, 6, 15 and 23-25 for obviousness-type double patenting over claims 1, 3, 4, 14-18, 24 and 26 of copending application 09/433,202. Applicants assert that this obviousness-type double patenting rejection is improper since the present earlier filed application cannot be an attempt to extend the patent term of the later filed patent application. Under the revised statute 35 U.S.C. §154, patent term is based on the filing date. Thus, the effective patent term of a later filed application cannot be unjustly extended by

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an earlier filed application. Thus, the earlier application should not be subject to an obviousness-type double patenting rejection over a later filed application. Sec MPEP 804. Applicants respectfully request withdrawal of the rejection of claims 15, 23 and 25 for obviousness-type double patenting over claims 9 and 13 of copending application 09/136,483.

Double Patenting Over Patent Application Publication 2001/0000912

The Examiner provisionally rejected claims 1-4 and 6-8 for obviousness-type double patenting over claims 1-8 of Patent Application Publication 2001/0000912. Applicants assert that this obviousness-type double patenting rejection is improper since the present earlier filed application cannot be an attempt to extend the patent term of the later filed patent application. Under the revised statute 35 U.S.C. §154, patent term is based on the filing date. Thus, the effective patent term of a later filed application cannot be unjustly extended by an earlier filed application. Thus, the earlier application should not be subject to an obviousness-type double patenting rejection over a later filed application. See MPEP 804. Applicants respectfully request withdrawal of the rejection of claims 15, 23 and 25 for obviousness-type double patenting over claims 9 and 13 of copending application 09/136,483.

Double Patenting Over U.S. Patent 6,290,735

The Examiner rejected claims 1, 4, 6, 15 and 25 for obviousness-type double patenting over claims 1, 2, 4-8 and 11 of U.S. Patent 6,290,735. Applicants will consider filing a Terminal Disclaimer over U.S. Patent 6,290,735 when the claims are found otherwise allowable.

Rejections Under 35 U.S.C. §102 Over EP 554,908

The Examiner rejected claims 15 and 25 under 35 U.S.C. §102(b) as being anticipated by EP 0 554 908B to Garg (the Garg EP patent). The Examiner asserted that the Garg

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EP patent allegedly discloses alpha aluminum oxide with a particle size range from 20 to 50 nm diameters and the substantial absence of particles larger than 100 nm. However, the statements regarding a substantial absence of particles larger than 100 nm is a significantly lower standard than the claimed standard of effectively no particles above a cut off as specified in claim 15 and claims depending therefrom. Therefore, the Examiner has failed to establish prima facie anticipation. Applicants respectfully request reconsideration of the rejection based on the following comments.

The Garg EP patent allegedly discloses alpha aluminum oxide particles with widths from about 20 to about 50 nm with less than about 5 percent with widths greater than about 100 nm. See column 5, lines 35-44. Particles with these properties are not within Applicants' claim since the claim indicates that **effectively no particles**, not a few percent, have a diameter greater than about 5 times the average diameter.

In further support of the rejection, the Examiner pointed to example 2. At column 9, lines 11-15, the Garg EP patent states "Transmission electron microscopy of this product, (Figure 1 of the Drawings), showed that substantially all of the particles had widths within the range of 20-50 nm and there was a substantial absence of particles over 100 nm." A visual review of Figure 1, however, reveals many particles with diameters under 20 nm in size and at least about ten particles with diameters larger than 100 nm with at least several particles having a diameter of about 200 nm. It is unclear what a "substantial absence" is intended to mean, but it does not mean "effectively no particles" as disclosed and claimed by Applicants.

The average particle size in Figure 1 of the Garg EP patent is roughly 35 nm. Thus, five times this value would be 165 nm. There are several particles within the micrograph larger than this. Thus, the Garg EP patent falls significantly short of disclosing Applicants' claimed invention. The Examiner failed to establish a prima facie case of anticipation because the Garg EP patent does not disclose all the elements of Applicants' claimed invention specifically "effectively

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no particles with a diameter greater than about 5 times the average diameter." Claims 15 and 25 are not anticipated by the Garg patent.

The Examiner provides a quote and citations to several cases relating to obviousness in support the present anticipation rejection. Applicants have not been able to identify the quote from the Office Action in Merck & Co., Inc. v. Biocraft Laboratories Inc., 10 USPQ2d 1843 (Fed. Cir. 1989). The Merck case relates to the obviousness of a species over a reference that discloses a genus. The relevance of the Merck case to the present fact situation is not clear. The other cases cited by the Examiner all relate to evidence needed to overcome a prima facie showing of obviousness. These cases also do not seem relevant to the present anticipation rejection.

The Examiner has asserted that Applicants have not presented evidence to support their conclusions with respect to Fig. 1 of the Garg EP patent. Fig. 1 is the evidence itself. The Examiner asked for an explanation why "one of ordinary skill in the art would assume the argued particle sizes obtained from from [sic] figure 1 are correct and the results of example 2 and the description of figure 1 in the body of the reference are incorrect." This request for explanation misses the point. The explanation in example 2 is not necessarily incorrect; it is vague and unclear. Fig. 1 is the data presented, which is the source of the measurements of particle size. Thus, the data in Fig. 1 is the source for the description of particle size in example 2 and, thus, the source for the interpretation of the explanation in example 2.

An examiner bears the burden of establishing prima facie anticipation. See MPEP 2112. With respect to the Garg EP patent, the Examiner has failed to establish that the particles claimed by Applicants are anticipated by the particles disclosed in the reference since the reference does not disclose the claimed cut off in particle size. Therefore, the Examiner has failed to meet her burden. Applicants respectfully request withdrawal of the rejection of claims 15 and 25 under 35 U.S.C. §102(b) as being anticipated by the Garg EP patent.

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Rejections Under 35 U.S.C. §102 Over Gutsche

The Examiner rejected claims 1, 2, 4, 6-8, 15, 23 and 25 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent 4,011,099 to Gutsche (the Gutsche patent). The Examiner asserts that the Gutsche patent discloses silica with all of the particles having a size within 25-30 nm. However, the statements in the patent fall far short of establishing the Examiner's position. Applicants respectfully request reconsideration of the anticipation rejection over the Gutsche patent based on the following comments.

The Gutsche patent describes the polishing of alpha alumina (aluminum oxide) using commercial suspensions of colloidal silica. There is no discussion of the characterization of the commercial silica. The Examiner makes the unsubstantiated assertion that the statement at column 3, lines 44-45 of "a particle size of 250 - 300 Angstroms" implies that all the particles are within this range. The only reasonable interpretation of this statement is that the average particle size is between 250 and 300 angstroms. Applicants do not believe that the Gutsche patent can be interpreted reasonably as indicated by the Examiner.

In particular, Applicants attach to this amendment information relating to SYTON HT50 from the manufacturer's web site. Evidently, SYTON HT40 is no longer sold. The information on SYTON HT50 is consistent with the interpretation of the statement relating to average particle size. The product literature only reports the average particle size. In view of the description in the reference and the characterization of the particles by the supplier, the reasonable interpretation of the description in the reference is to average particle size.

The Examiner has indicated that Applicants have not provided any evidence to support their assertion. However, it is the Examiner's burden to establish prima facie anticipation. The description of "a particle size" does not provide any explanation of particle size distribution.

Therefore, the Examiner has failed to make a prima facie case for anticipation because the Gutsche patent fails to disclose all of the elements of Applicants' claimed invention, in

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particular the claimed particle size distribution. Applicants respectfully request withdrawal of the rejection of claims 1, 2, 4, 6-8, 15, 23 and 25 under 35 U.S.C. §102(b) as being anticipated by the Gutsche patent.

Rejections Under 35 U.S.C. §102 Over Shimizu et al.

The Examiner rejected claims 1, 4, 6, 9, 10, 12-15 and 25 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent 4,842,837 to Shimizu et al. (the Shimizu patent). The Examiner cited the Shimizu patent for disclosing uniform silicon oxide particles. In particular, the Examiner noted that the Shimizu patent disclosed monodispersed silica. Applicants respectfully request reconsideration of the rejections over the Shimizu patent in view of the following analysis.

In the abstract, the Shimizu patent indicates that the particles are "highly monodispersed." However, highly is a relative terms that does not quantify the degree of uniformity. There is no direct indication of the degree of uniformity of the silicon oxide particles. Therefore, the only way that the Shimizu patent can anticipate Applicants' claimed invention is through inherency. However, the Examiner has not presented a prima facie case for anticipation by inherency. In particular, the Examiner has not indicated that the particles described in the Shimizu patent necessarily have the claimed properties.

In support of the rejection, the Examiner asserts that examples 1, 3, 4 and figure 1 show that the particles have a single or uniform particle size. Applicants do not see any information in examples 1, 3 or 4 relating to particle size distribution that provides any insight into the meaning of "highly monodispersed." With respect to figure 1, the magnification is insufficient to evaluate the presence of smaller particles. Thus, the particle size distribution and the meaning of "highly monodispersed" cannot be evaluated in a reasonable way.

Since the Examiner has failed to establish prima facie anticipation due to the missing description of the claimed particles size distribution in the reference, Applicants respectfully request

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withdrawal of the rejection of claims 1, 4, 6, 9, 10, 12-15 and 25 under 35 U.S.C. §102(b) as being anticipated by the Shimizu patent.

Rejections Under 35 U.S.C. §102(b) Over the Rostoker '194 Patent And the Rostoker '715 Patent

The Examiner rejected claims 1, 2, 4, 6, 7, 9, 15, 23 and 25 under 35 U.S.C. §102(b) over the Rostoker '194 patent. Similarly, the Examiner rejected claims 1, 2, 4, 6, 7, 9, 15, 23 and 25 under 35 U.S.C. §102(b) [sic 102(e)] over the Rostoker '715 patent. In particular, the Examiner cited the Rostoker '715 patent for disclosing dispersions of alumina or silica particles. Specifically, the Examiner points to the **prophetic** Examples of the Rostoker patents in support of the rejection. The Rostoker '194 patent and the Rostoker '715 patent contain equivalent disclosure from the perspective of these rejections and are, therefore, considered together. Applicants incorporate by reference their arguments with respect to the Rostoker patents from the Amendment of December 21, 2001 to avoid repeating those arguments here. Applicants respectfully request reconsideration of the rejection based on the following analysis.

Applicants continue to maintain that neither the Rostoker patent '194 patent nor the Rostoker '715 patent prima facie anticipate Applicants' claimed invention. Since the explanation of particle size distribution in the Rostoker patent is unclear. There is no basis for interpreting the distribution in the Rostoker patent as falling within the distribution of Applicants' claimed invention. This is discussed further in the Amendment of December 21, 2001.

Applicants do not understand the basis for the Examiner's assertion that Dr. Singh's Declaration (submitted with the Amendment of December 21, 2001) does not establish by a preponderance of the evidence that the value of Q cannot be determined. Applicants may have inadvertently failed to send Professor Singh's resume with the Declaration. Professor Singh's resume is attached. The Examiner maintains that Q can be determined by a person of ordinary skill in the art when an established internationally recognized expert in the field cannot determine how to

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evaluate Q. Q is the variable used in the Rostoker patent to characterize the particle size distribution. As stated at column 7, lines 18-19 of the Rostoker '194 patent and column 6, lines 20-21 of the Rostoker '715 patent (emphasis added), "A quality factor 'Q' is inversely related to 'Y', and is a measure of the **distribution** of particle sizes." The dimensions of the variables are internally inconsistent. The evidence in Dr. Singh's declaration is clear and convincing.

The Examiner's view that the Dr. Singh's statements, namely, that he is unaware of any other methods for producing the claimed particles should be given no weight, is contrary to the law. As stated in MPEP 716.01(c), "[opinion] testimony is entitled to consideration and some weight so long as the opinion is not on the ultimate legal conclusion." Moreover, "In assessing the probative value of an expert opinion, the examiner **must** consider the nature of the matter sought to be established, the strength of any opposing evidence, the interest of the expert in the outcome of the case, and the presence and absence of factual support for the expert's opinion." *Id.* (Emphasis added). These statements in the MPEP are consistent with the statements of the Supreme Court in Graham v. John Deere.

Dr. Singh is an expert in particle technology, so that his statements regarding availability of materials is certainly probative without explicit contrary evidence. The Examiner has not presented any evidence other than her own arguments to contradict the explanation of an expert in the field. Dr. Singh has no interest in the present appeal.

The Examiner makes a further confusing statement contradicting Applicants' assertions that the Rostoker examples are prophetic. The Rostoker examples are written in the present tense. This is standard format for prophetic examples. Past tense is used for actual examples. The example of the Rostoker patents are also **extremely** terse, basically selecting one of the parameters from the ranges presented above. This terse nature of the examples is consistent with their being prophetic. Therefore, the prophetic examples do not provide any additional teachings with respect to Applicants' claimed features.

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The extreme deficiencies of the Rostoker patent imply that the Examiner has failed to establish prima facie anticipation since Applicants' claimed particle size distribution is not in the cited references. To the extent that the Examiner did establish prima facie anticipation, Applicants have more than adequately rebutted the assertions through the presentation of Professor Singh's Declaration and other arguments. Applicants respectfully request withdrawal of the rejection of claims 1, 2, 4, 6, 7, 9, 15, 23 and 25 under 35 U.S.C. §102(b) over the Rostoker '194 patent. Similarly, Applicants respectfully request withdrawal of the rejection of claims 1, 2, 4, 6, 7, 9, 15, 23 and 25 under 35 U.S.C. §102(b) [sic 102(e)] over the Rostoker '715 patent.

Rejections Over The Garg EP Patent, Rostoker '194, Rostoker '715 and the Gutsche Patent

The Examiner rejected claims 23 and 24 under 35 U.S.C. 103(a) as being unpatentable over the Garg EP patent in view of the Sandhu patent, the Rostoker '194 patent, the Rostoker '715 patent and the Gutsche patent. The Examiner cited the secondary references for disclosing aqueous and nonaqueous solutions for polishing compositions. However, the primary reference does not disclose particles with the claimed properties, as described above. Applicants respectfully request reconsideration of the rejection based on the above and the following comments.

As described above, the Garg EP patent does not establish a prima facie case of anticipation of Applicants' claimed invention. Based on our analyses of these patents above, the secondary references do not make up for the deficiencies of the Garg EP patent since it does not disclose Applicants' claimed particle size distribution. Therefore, the combined disclosures of the references fail to establish a prima facie case of obviousness of Applicants' claimed invention. Applicants respectfully request withdrawal of the rejections of claims 23 and 24 under 35 U.S.C. 103(a) as being unpatentable over the Garg EP patent in view of the Sandhu patent, the Rostoker '194 patent, the Rostoker '715 patent and the Gutsche patent.

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Rejections Over Shimizu and Secondary References

The Examiner rejected claims 2, 3, 23 and 24 under 35 U.S.C. 103(a) as being unpatentable over the Shimizu patent in view of Sandhu et al., Rostoker, Rostoker et al. and Gutsche. The Examiner cited the secondary references for disclosing the use of liquids in polishing compositions. However, as discussed above, the primary reference does not establish a prima facie case of anticipation of Applicants' claimed invention because it fails to disclose all of the claimed elements. Applicants respectfully request reconsideration of the rejection based on the following and above comments.

As described in detail above, the Shimizu patent does not disclose particles with properties specified in Applicants' claims with respect to the claimed particle size distribution. Based on our analysis of these patents above, the secondary references do not make up for the deficiencies of the Shimizu patent. Therefore, the combined disclosures of the cited references do not establish a prima facie case of obviousness of Applicants' claimed invention. Applicants respectfully request withdrawal of the rejection of claims 2, 3, 23 and 24 under 35 U.S.C. 103(a) as being unpatentable over the Shimizu patent in view of Sandhu et al., Rostoker, Rostoker et al. and Gutsche.

Rejections Over Rostoker or Rostoker et al.

The Examiner rejected claims 1, 2, 4, 6-9, 12, 15, 23 and 25 under 35 U.S.C. 103(a) as being unpatentable over the Rostoker '194 patent or the Rostoker '715 patent. The Examiner asserted that polishing with certain parameters was obvious to a person of ordinary skill in the art. However, the Rostoker '194 patent and the Rostoker '715 patent, taken alone or together, do not establish a prima facie case of obviousness because they do not teach or suggest particles with the properties specified in Applicants' claims. The deficiencies of the Rostoker '194 patent and the Rostoker '715 patent are described in detail above with respect to the lack of

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teaching of Applicants' claimed particle size distribution. The deficiencies of the Rostoker patents are further described in the Declaration of Dr. Singh. Applicants respectfully request withdrawal of the rejection of claims 1, 2, 4, 6-9, 12, 15, 23 and 25 under 35 U.S.C. 103(a) as being unpatentable over the Rostoker '194 patent or the Rostoker '715 patent.

Rejections Over Sandhu and Secondary References

The examiner rejected claims 1-4, 6, 15 and 23-25 under 35 U.S.C. 103(a) as being unpatentable over the Sandhu patent in view of Gutsche, the Rostoker '194 patent or the Rotoker '715 patent. The Examiner cited the secondary references for disclosing conventional chemical mechanical polishing. The deficiencies of the Sandhu patent are described in detail above. Applicants respectfully request reconsideration of the rejection based on the above and following comments.

Based on our analyses of these patents above, the secondary references do not make up for the deficiencies of the Sandhu patent, namely, the lack of teaching of Applicants' claimed particles size distribution. Therefore, the combined disclosures of the cited references do not establish a prima facie case of obviousness because they do not disclose all of the elements of Applicants' claimed invention, namely the claimed particles size distribution. Applicants respectfully request withdrawal of the rejection of claims 1-4, 6, 15 and 23-25 under 35 U.S.C. 103(a) as being unpatentable over the Sandhu patent in view of Gutsche, the Rostoker '194 patent or the Rotoker '715 patent.

CONCLUSIONS

In view of the foregoing, it is submitted that this application is in condition for allowance. Favorable consideration and prompt allowance of the application are respectfully requested.

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The Examiner is invited to telephone the undersigned if the Examiner believes it would be useful to advance prosecution.

Respectfully submitted,



Peter S. Dardi, Ph.D.
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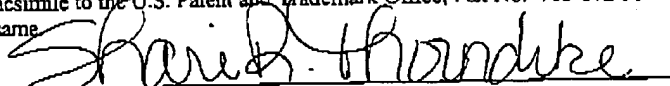
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September 6, 2002
Date


Shari R. Thorndike

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ATTACHMENT
MARKED-UP AMENDMENT

In the Specification

Please substitute the following amended paragraph(s) and/or section(s):

In the Preliminary Amendment of April 24, 2001, a Cross Reference to Related Applications was added. Please replace this paragraph with the following.

This application is a continuation of copending and commonly assigned U.S. Patent Application Serial No. 08/961,735, now U.S. Patent 6,290,735 to Kambe et al., entitled "Abrasive Particles For Surface Polishing," incorporated herein by reference.